

REMARKS

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

The present invention as set forth in **amended Claim 26** relates to a coating liquid for an outermost layer of an electrophotographic photoreceptor, comprising:

an alumina filler;

an organic compound having an acid value of from 10 to 700 mgKOH/g;

a binder resin; and

plural organic solvents;

wherein said organic compound is selected from the group consisting of i) polymers having a saturated or unsaturated hydrocarbon skeleton and at least one carboxyl group, ii) copolymers having a saturated or unsaturated hydrocarbon skeleton and at least one carboxyl group, iii) oligomers having a saturated or unsaturated hydrocarbon skeleton and at least one carboxyl group and iv) mixtures thereof;

wherein said coating liquid is prepared by mixing the filler, the organic compound, the binder resin and the plural organic solvents using a **ball mill containing only alumina balls**.

Nakao et al, Patzschke et al, and Kanamori et al, alone or in combination, fail to disclose or suggest a coating liquid as claimed which is prepared by mixing **the alumina filler**, the organic compound, the binder resin and the plural organic solvents using a **ball mill containing only alumina balls**.

The specification of the present invention discloses at page 71, lines 5-10 that:

When alumina is used as a dispersing element, the abrasion amount of alumina is much less than zirconia, and therefore the influence on residual potential is very little. Therefore alumina is preferable as the dispersing element. In addition, it is preferable to use alumina as a filler when alumina balls are used as the dispersing element.

In addition, the Examples in the present specification show that **when only alumina balls are used**, the filler can be finely dispersed and excellent dispersion stability can be achieved. See the Examples starting at page 94 of the specification which were performed using different resins, monocarboxylic acid derivatives and fillers and wetting dispersants in various amounts. Notably, Examples 10, 25 and 26 are a direct comparison between using alumina balls and zirconia balls or a shaker instead of a ball mill. Example 10 had no precipitation after one day after the preparation, while in Examples 25 and 26 there is a small amount of precipitate after only one day. Clearly, using a ball mill that has only alumina balls results in superior dispersion stability and a coating having a uniform distribution of the filler can be obtained. However, if there is a precipitate in the coating liquid, the resulting coating cannot have a uniform distribution of the filler. Table 1 from pages 108-110 of the specification is reproduced below.

Table 1

		Filler	AV* ¹ (mgKOH /g)	Addi- tion amount * ² (parts)	PD* ³ of filler (μ m)	PD* ⁴ Of Liquid (μ m)	Pre- cipi- tation
Example	1	Alumina	35	0.60	0.3	0.71	○
	2	Alumina	65	0.30	0.3	0.65	○
	3	Alumina	200	0.20	0.3	0.61	○
	4	Alumina	130	0.20	0.3	0.59	○
	5	Alumina	95	0.20	0.3	0.50	◎
	6	Alumina	160	0.12	0.3	0.53	◎
	7	Alumina	129	0.03	0.3	0.47	◎
	8	Titanium oxide	129	0.03	0.3	0.51	◎
	9	Alumina	150	0.06	0.3	0.48	◎
	10	Alumina	180	0.06	0.3	0.42	◎
	11	Alumina	365	0.03	0.3	0.39	◎
	12	Alumina	180	0.01	0.3	0.57	◎
	13	Alumina	180	0.20	0.3	0.40	◎
	14	Alumina	180	0.06	0.2	0.37	◎
	15	Alumina	180	0.06	0.9	1.06	○
	16	Alumina	180	0.06	0.013	0.21	◎
	17	Titanium oxide	180	0.06	0.3	0.46	◎
	18	Alumina treated with titanate coupling agent	180	0.06	0.3	0.36	◎

	19	Titanium oxide treated with aluminum stearate	180	0.06	0.03	0.27	⊙
	20	Titanium oxide treated with silane coupling agent	180	0.06	0.015	0.31	○
	21	Alumina	180	0.06	0.3	0.62	○
	22	Alumina	180	0.06	0.3	0.45	⊙
	23	Alumina	180	0.06	0.3	0.52	⊙
	24	Alumina	180	0.06	0.3	0.70	○
	25	Alumina	180	0.06	0.3	0.51	○
	26	Alumina	180	0.06	0.3	0.48	○
Comparative Example	1	Alumina	—	0	0.3	1.23	×
	2	Titanium oxide	—	0	0.3	1.15	×
	3	Alumina treated with titanate coupling agent	—	0	0.3	0.88	△
	4	Titanium oxide treated with silane coupling agent	—	0	0.015	0.51	×
	5	Alumina	—	0	0.3	1.16	×
	6	Alumina	7	0.60	0.3	1.08	×
	7	Alumina	7	1.20	0.3	0.96	×
	8	Alumina	7	0.60	0.013	0.58	×
	9	Alumina treated with titanate coupling agent	7	0.60	0.3	0.75	○
	10	Alumina	—	0.06	0.3	0.92	×

*1: Acid value of the organic compound

*2: Addition amount of the organic compound

*3: Average primary particle diameter of the filler

*4: Average particle diameter of the solid components in the coating liquid.

Further, Applicants previously submitted a **Rule 132 Declaration** showing that by using ball milling, the filler can be finely dispersed while the dispersion has good dispersion stability. This cannot be achieved with the methods of Nakao et al, Patzschke et al, and Kanamori et al. In addition, the use of alumina balls results in a superior product compared to a product obtained using zirconia balls or glass balls. It is shown that even when a ball mill is used, the dispersibility and dispersion stability of the resultant dispersions depends on the dispersion media (i.e. balls). This is not disclosed or suggested by Nakao et al, Patzschke et al, and Kanamori et al. Using the method according to Claim 26, superior dispersibility and dispersion stability can be obtained.

Further, the dispersion maintains good dispersibility for a long period of time. Therefore, the filler is uniformly dispersed in a protection layer (an outermost layer) formed using the dispersion. As a result, good mechanical durability can be imparted to the protective layer and a residual potential of the resultant photoreceptor can be decreased.

In the Office Action of November 13, 2006, the Examiner stated that the data in the Rule 132 Declaration filed December 23, 2005, is insufficient to establish criticality for mixing with an alumina ball mill because the data is not commensurate in scope with the claims. Since the filler has been limited to be alumina, the previously filed Rule 132 Declaration is commensurate in scope with the claims and the disclosure at page 71, lines 5-10 of the specification.

Nakao et al, Patzschke et al, and Kanamori et al, alone or in combination, fail to disclose or suggest a coating liquid as claimed in amended Claim 26 which is prepared by mixing **the alumina filler**, the organic compound, the binder resin and the plural organic solvents using a **ball mill containing only alumina balls**.

Thus, the rejections over Nakao et al, Patzschke et al, and Kanamori et al, alone or in combination, should be withdrawn.

Application No.: 10/827,376

Reply to the Office Action dated: November 13, 2006

Regarding the **List of Related Cases filed March 21, 2006**, Applicants note that Serial No. 11/480,517 was listed as a related application for the Examiner's consideration as is required by §§2001.06 (b) and 2004. Thus, **consideration of the co-pending application on the record is requested.**

Finally, Applicants note that MPEP 821.04 states, "if applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim will be rejoined." Applicants respectfully submit that should the elected group be found allowable, the non-elected claims should be rejoined.

With respect to the elected species, Applicants respectfully submit that, should the elected species be found allowable, the Office should expand its search to the non-elected species.

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This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

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